

## **California biosolids use and disposal trends, 2011**

*(all values expressed as dry metric tonnes, 100% dry weight basis)*

Tonnage generated: 710,000 dmt

Land application (placement on land to grow crops): 404,900 dmt

Class A: 235,000 dmt

Compost: 151,000

Thermophilic digestion: 50,000

Heat drying: 13,000

Alkali treatment: 20,000

Air drying and testing for pathogens (Alternative 4): 1,600

ATAD: 300

Class B: 169,000 dmt

(over 90% is achieved by anaerobic digestion; most of the remainder by air drying for three months or testing for fecal coliforms)

Landfill disposal or use as ADC: 220,000 dmt

Surface disposal (placement on land for disposal): 23,000 dmt

Incineration: 20,000 dmt

Fuel for cement kilns: 18,000 dmt

Deep well injections: 11,000 dmt

Temporary storage: 30,000 dmt

Long term treatment in lagoons, ponds: 12,000 dmt

Other (research, feed sludge for industrial digesters, etc.): 2,000 dmt

Counties where > 1,000 dmt of California Class B biosolids was land applied:

Yuma County, AZ (privately-owned lands): 72,000 dmt

Merced County (city-owned and private lands): 41,000

Sacramento (private): 22,000

Kern (city-owned): 7,500

Sonoma (city and private): 7,100

Solano (private): 7,000

Stanislaus (city): 5,000

Colusa (private): 4,000

Tulare (city): 1,300

Napa (city and private): 1,100

Alameda (private): 1,000

## Notes:

California biosolids options continued to diversify in 2011, with larger quantities being used for fuel in cement kilns and for deep well injection. Tonnages for 2011 were greater than for 2010, due to a combination of economic upturn, population growth, shifts at several facilities from extended air-drying to mechanical dewatering, upgrading treatment processes to remove more solids, and several small POTWs doing major lagoon dredgings last year.

323,000 dmt, 45% of the biosolids generated in California, were used, disposed, or further treated in the Central Valley (the area covered by the Central Valley Regional Water Quality Control Board). This included the 12% generated by POTWs in the Central Valley, and 33% coming from Southern CA and the Bay Area. The tonnage used, disposed, or treated in Kern County dropped from 33% of California's biosolids a couple of years ago to 23% in 2011.

98,000 dmt, 14% of California's biosolids, were used, treated, or disposed in Arizona. About 0.3% went to Nevada and 0.1% to Oregon. A sludge treatment operation on Cabazon lands received about 0.1% before being shut down by EPA's RCRA program in April 2011.

Levels of the pollutants regulated under 40 CFR 503 continued to decline. Particularly noticeable were drops in copper and lead: many POTWs are now reporting copper levels of less than 250 ppm and lead levels of < 10 ppm, levels which were very rare until recently. About 2% of California's sewage sludge still exceed 503 Table 3 limits for either zinc, copper, or arsenic.

## Notes on data:

The tonnage generated does not equal tonnage used and disposed for a number of reasons including:

- Some POTWs produce several thousand tons of biosolids once every ten or twenty years when they dredge their lagoons.
- Some POTWs stockpile the current year's biosolids, and use or dispose of a previous year's biosolids
- Some POTWs record the tonnage generated before placing the biosolids in drying beds, then scoop up a lot of sand when removing the biosolids from the drying beds and record this as the tonnage used or disposed.
- The tonnages reported for composting operations are the tonnages received; however the composting process both releases more volatile compounds, and adds bulking agents, so the final tonnage may be greater or less than the tonnage received.

Tonnages reported are based on: annual reports from major POTWs, reports from land appliers and composters who also report tonnages received from minor POTWs, and estimates from 2S forms and WDR's for POTWs that only remove sludge every several years and minors who send sludge to landfills.